

An underwater photograph showing a vibrant coral reef. In the foreground, two large sharks are swimming towards the left. The background is filled with various types of coral, including some with bright red polyps. The water is clear and blue.

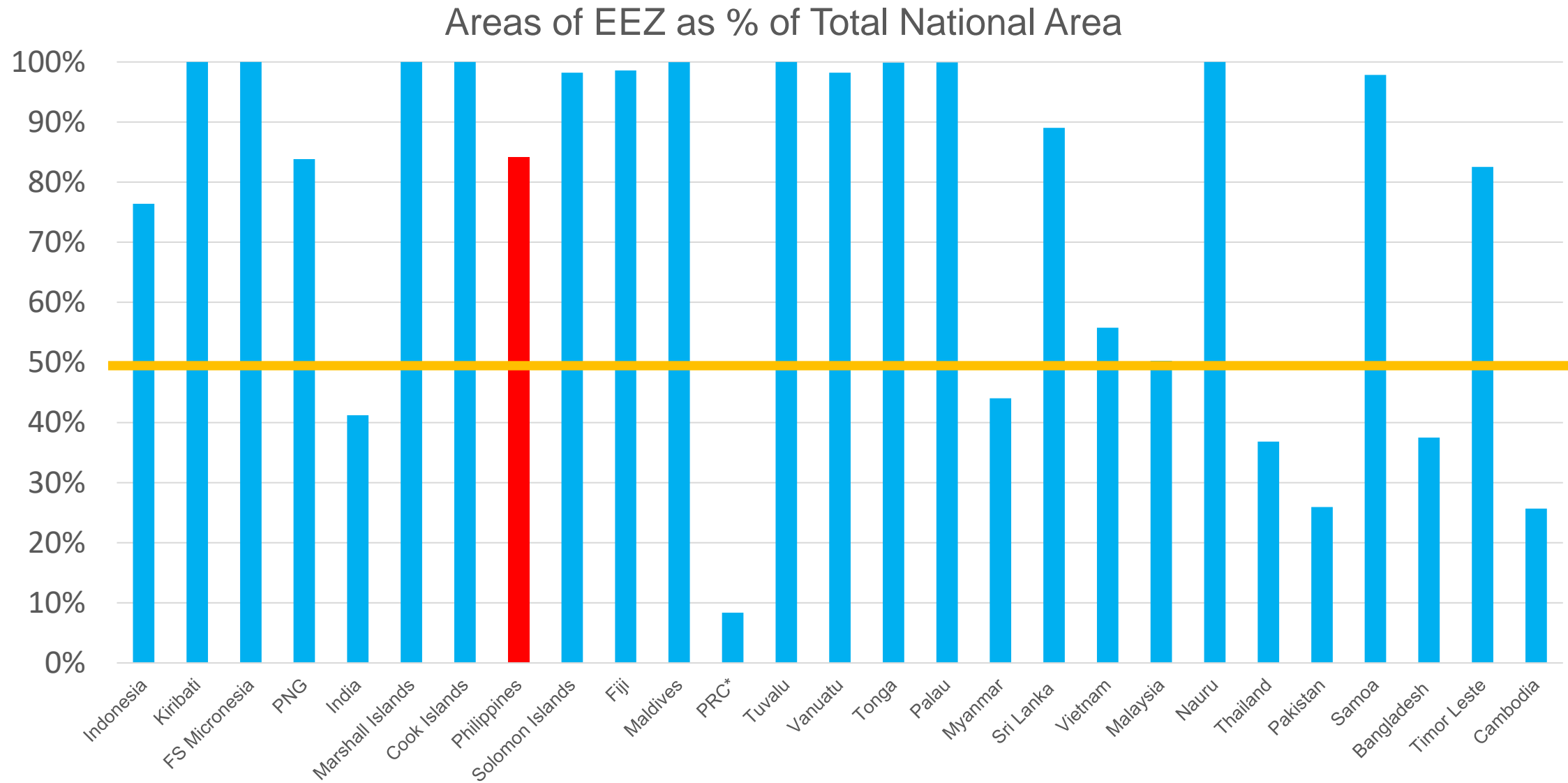
# We Live on Planet Sea

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**ACEF 2022  
Session 1.2**

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# Sea blindness and Wealth blindness?







**Monetizing Offshore Renewable Energy and Regenerative Ecosystems (MORE)  
Via  
Marine Aquaculture, Reefs, and Ecotourism for Ecosystem Services (MARES)**





# MARES v0: Gulf of Mexico Offshore Oil & Gas Rigs to Reefs (R2R) Program

**1987- 2020**

~ 11% of retirements

558 conversions supporting sport diving, sport fishing, & regional commercial seafood production

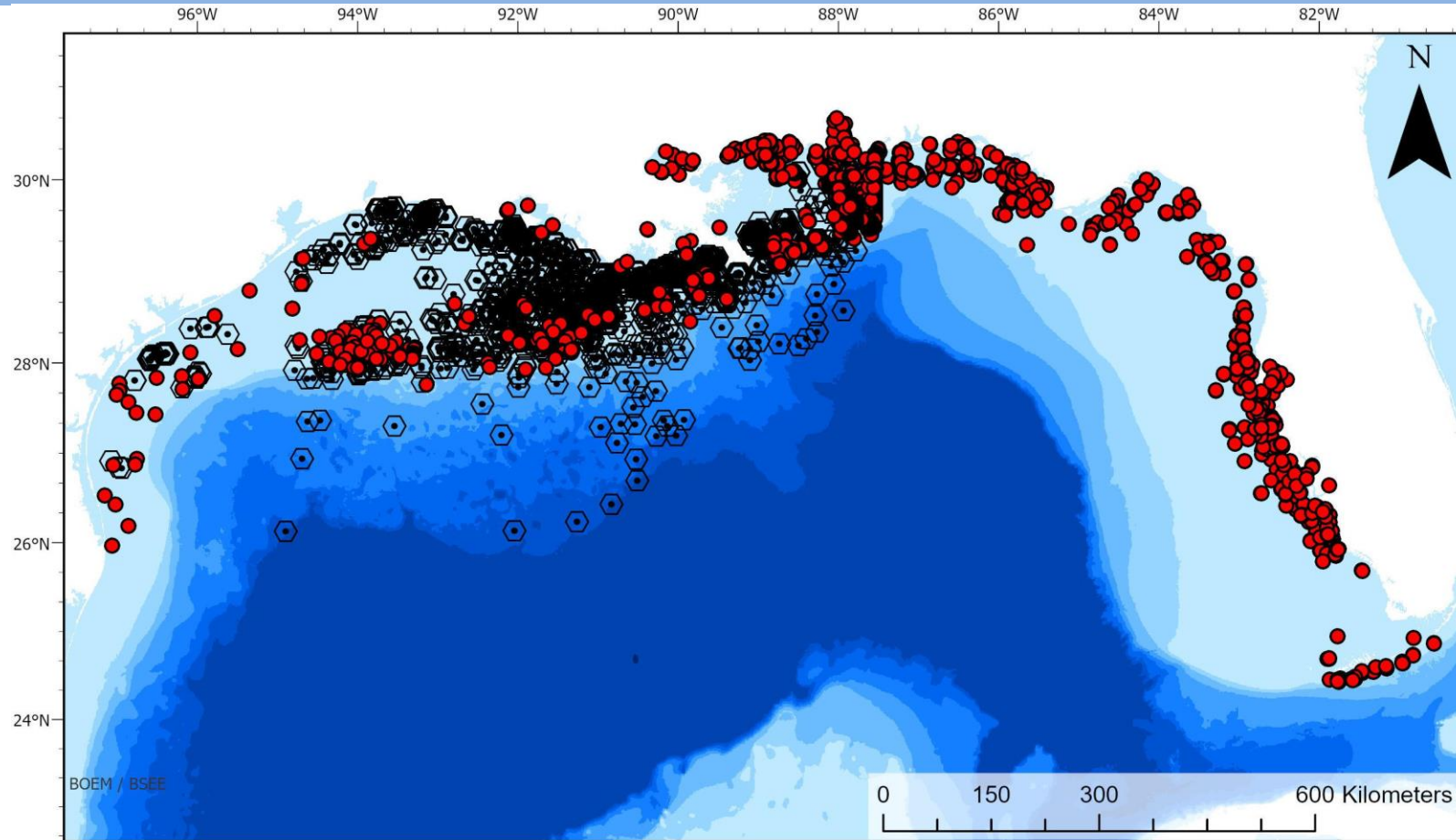


*\*\*The 27  
rigs  
offshore  
southern  
California  
support  
more  
marine  
biodiversity  
than in  
California's  
marine  
protected  
areas*



@ US conversion rate,  
100+ candidates in SE Asia  
7 in the Philippines  
20 – 30 pending in Thailand  
Indonesia? Malaysia?

# MARES v0: Gulf of Mexico Cultivated Reefs - R2R and Wrecks-to-reefs



## Legend

● Artificial Reefs

⊕ OCS Drilling Platforms

Bathymetry (m)

-1 - -49

-50 - -99

-100 - -199

-200 - -499

-500 - -999

-1,000 - -1,499

-1,500 - -1,999

-2,000 - -2,499

2,500 - 3,999

≤ -4,000

# Offshore Seaweed Potential in ADB DMCs

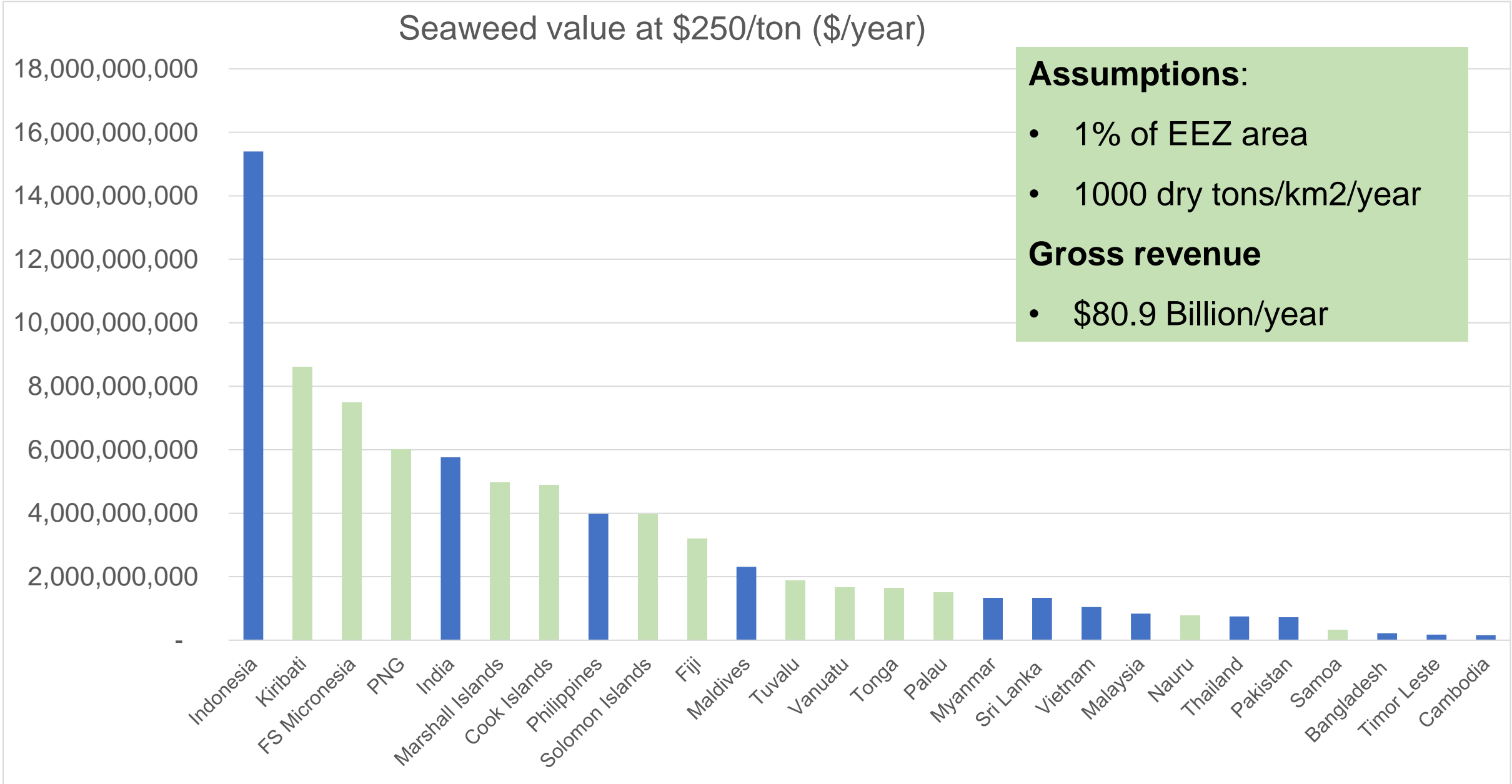
Seaweed value at \$250/ton (\$/year)

## Assumptions:

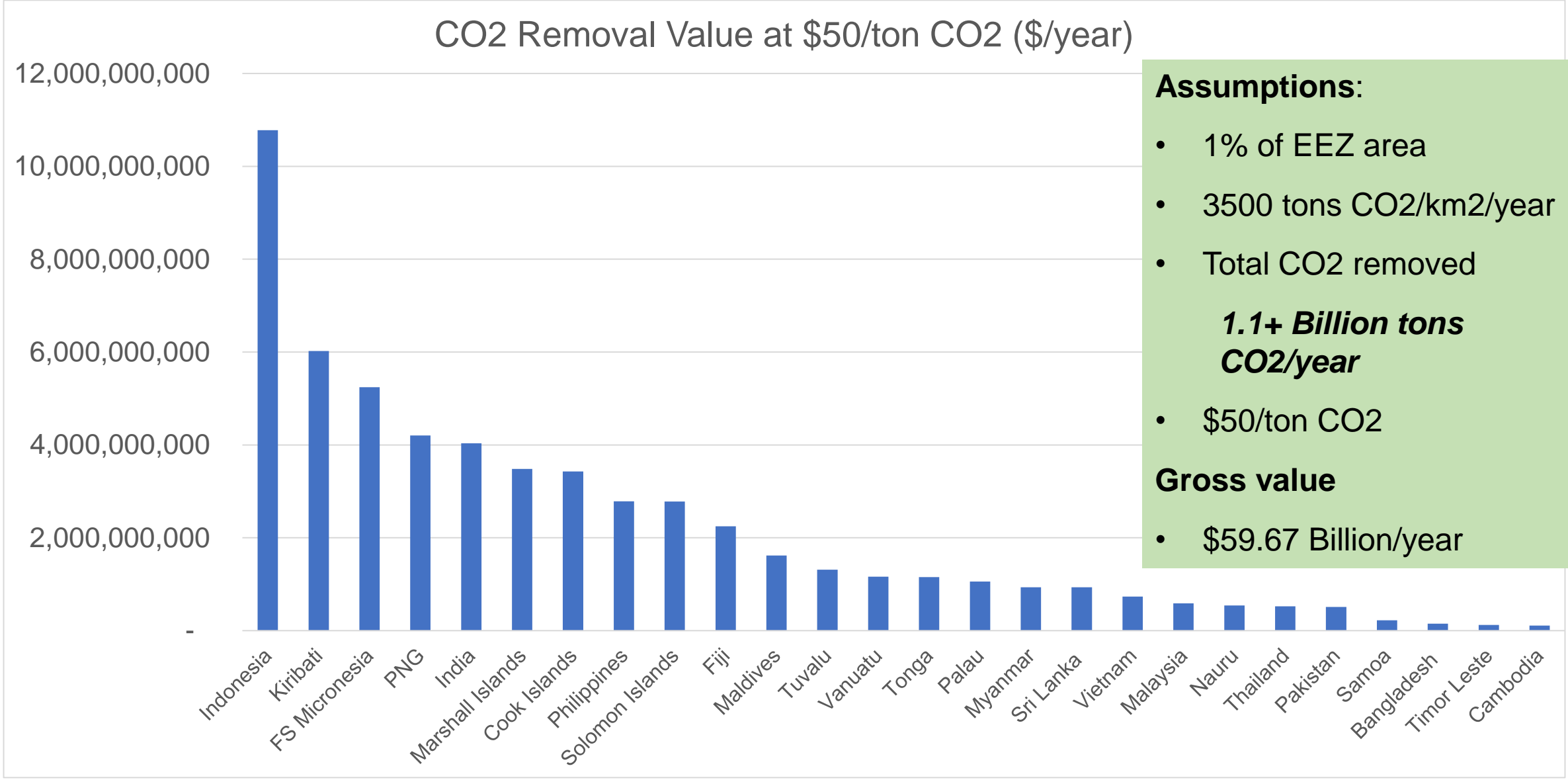
- 1% of EEZ area
- 1000 dry tons/km<sup>2</sup>/year

## Gross revenue

- \$80.9 Billion/year



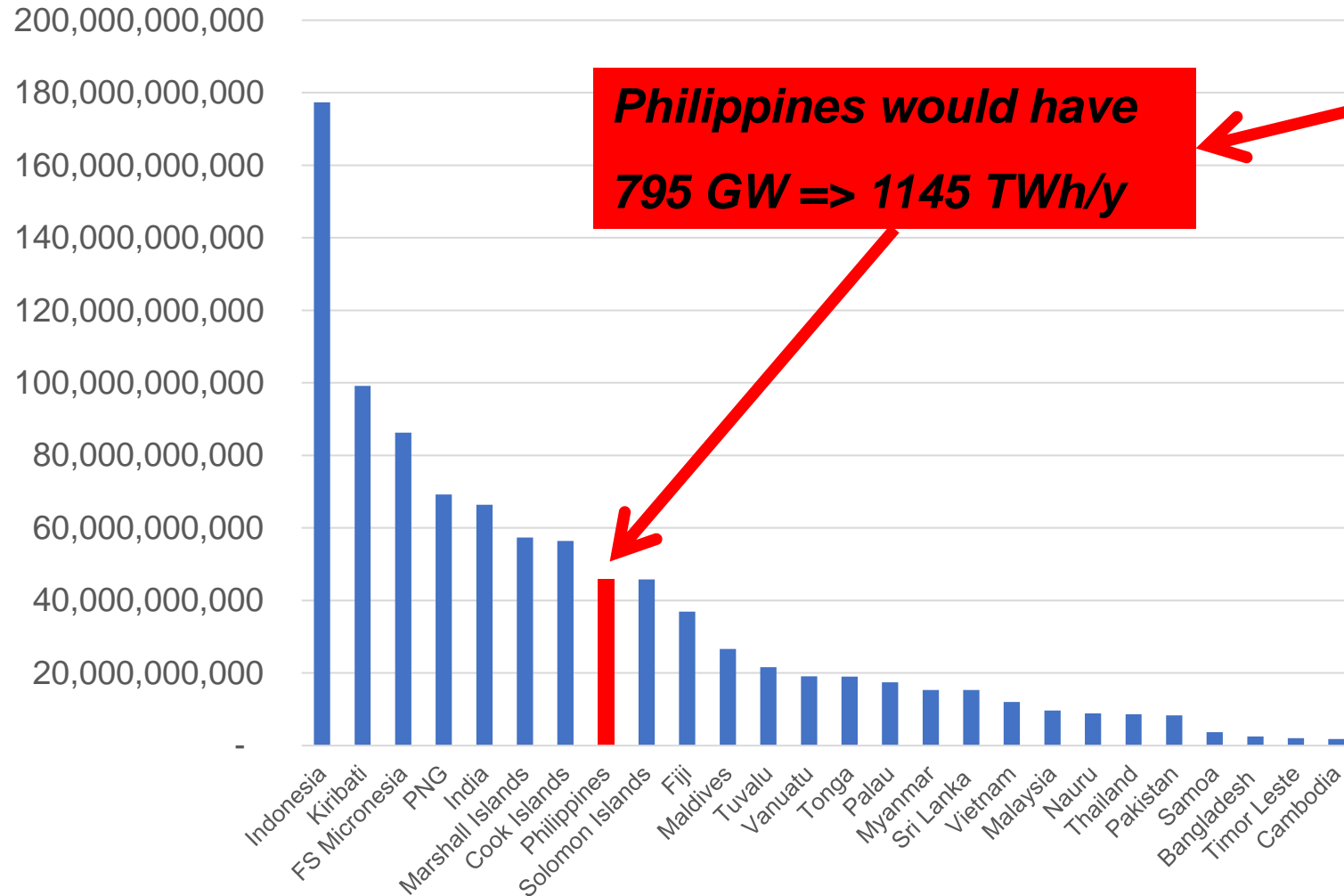
# Gigatech Solutions for Gigaton Problems: CO2 removal via Seaweed





# Offshore RE to H<sub>2</sub> Potential in ADB DMCs with EEZs

Hydrogen value at \$2/kg (\$/year)



## Assumptions:

- 1% of DMCs' EEZ area
- RE @ 50 MW/km<sup>2</sup> @ 16% capacity utilization factor
- Conversion @ 50 MWh/ton H<sub>2</sub>

## RESULTS:

- 23,000 TWh/y = current global electricity output!
- displace ~ 40% of global natural gas production (2019)
- avoid ~ 5 Billion tons CO<sub>2</sub>e/year.
- ***New industry with revenues of \$1 Trillion/year.***

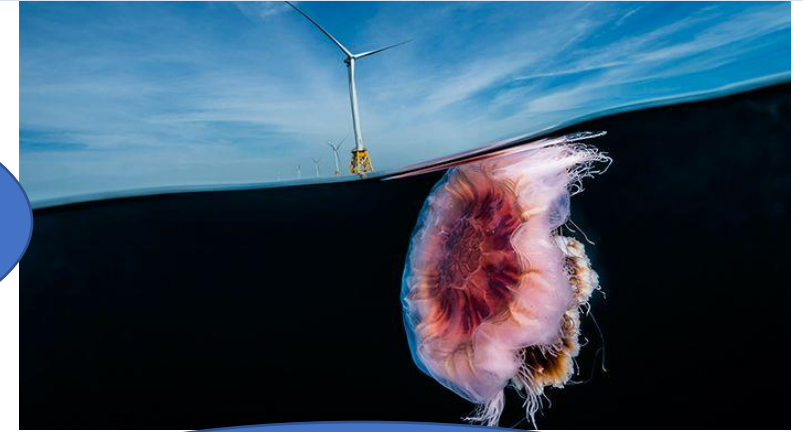


## **Regenerative** H2 enhances ocean health while providing:

(i) H2, (ii) oxygen, (iii) fresh water, (iv) reefs, (v) seafood, (vi) tourism, (vii) carbon \$\$\$?



Advanced **marine aquaculture** output could be 100 times current global seafood consumption



**Reefs** can be cultivated and grown faster than natural reefs are dying



**Offshore RE** can power new industries: REGENERATIVE H2, carbon-negative building materials, climate-proof water, etc.



**Ecotourism** developed around reefs and integrated with marine aquaculture and offshore RE







Thank you!  
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